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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,911	12/27/2001	Margarete Focke	0273-0005	6842

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EXAMINER	
SZPERKA, MICHAEL EDWARD	
ART UNIT	**PAPER NUMBER**
1644	

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,911	FOCKE ET AL.	
	Examiner	Art Unit	
	Michael Szperka	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,9,14-24 and 28-38* is/are pending in the application.

4a) Of the above claim(s) *14-24 and 28-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-4, 9, and 34-37* is/are rejected.

7)☒ Claim(s) *38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response and amendments received August 17, 2006 are acknowledged.

Claim 1 has been amended.

Claims 5-8,10-13, and 25-27 have been canceled.

Claims 34-38 have been added.

Claims 14-24 and 28-33 stand withdrawn from consideration as being drawn to nonelected inventions. See 37 CFR 1.142(b) and MPEP § 821.03, for reasons of record set forth in the restriction requirement mailed June 7, 2004.

Claims 1-4, 9, and 34-38 are under examination as they read on pharmaceutical compositions comprising Bet v 1 peptides.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The rejection of claims 1-3, 7, and 9 under 35 U.S.C. 102(b) as being anticipated by Ferreira et al. (FASEB J, 1998, 12:231-242, of record, see entire document) as evidenced by Gajhede et al. (of record as reference AD1 on the ISD received 6/20/02, see entire document) has been withdrawn in light of applicant's claim amendments received 8/17/06.

Specifically, applicant has amended the claims to recite that the peptide present in the claimed composition is at least 8 amino acids in length but cannot be longer than

50 amino acids in length. The polypeptides of Ferreira et al. are longer than 50 amino acids and as such the rejection has been withdrawn.

4. The rejection of claims 1-4, 7, and 9 under 35 U.S.C. 102(b) as being anticipated by Vik et al. (Int Arch Allergy Immunol, 1993, 101:89-94, see entire document) as evidenced by Gajhede et al. (of record as reference AD1 on the IDS received 6/20/02, see entire document), as evidenced by Friedl-Hajek et al. (Molecular Immunology, 1999, 639-645, see entire document), and as evidenced by Mandler et al. (J. Immunol. 1993, 150:407-418, see entire document) has been withdrawn in light of applicant's claim amendments received 8/17/06.

Specifically, applicant has amended the claims to recite that the peptide present in the claimed composition does not induce an IgE-mediated reaction. The peptides of Vik et al. are taught as being bound by IgE antibodies present in the sera of human patients known to have birch allergy. As such the peptides of Vik et al. upon administration would induce an IgE mediated allergic reaction and thus the peptides of Vik et al. do not meet the limitations of the instant claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The rejection of claims 1 and 6 under 35 U.S.C. 103(a) as being unpatentable over Vik et al. (Int Arch Allergy Immunol, 1993, 101:89-94, see entire document) as evidenced by Gajhede et al. (of record as reference AD1 on the ISD received 6/20/02, see entire document), as evidenced by Friedl-Hajek et al. (Molecular Immunology, 1999, 639-645, see entire document), and as evidenced by Mandler et al. (J. Immunol. 1993, 150:407-418, see entire document) in view of Harlow et al. (Antibodies, A Laboratory Manual, 1988, Cold Spring Harbor Laboratory, pages 72-87, see entire document) has been withdrawn in light of applicant's claim amendments received 8/17/06.

Specifically, applicant has amended the claims to recite that the peptide present in the claimed composition does not induce an IgE-mediated reaction. The peptides of Vik et al. are taught as being bound by IgE antibodies present in the sera of human patients known to have birch allergy. As such the peptides of Vik et al. upon administration would induce an IgE mediated allergic reaction and thus the peptides of Vik et al. do not meet the limitations of the instant claims, and this deficiency is not corrected by any of the other cited references.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-4, 9, and 34-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The office action mailed May 24, 2006 states:

> Applicant has claimed a broad genus of compositions comprising peptides wherein the peptide is identical to birch pollen allergen Bet v 1 at all positions except one. To support such a genus applicant has

provided the peptides of SEQ ID NOs:1-6. The disclosure of these peptides does not indicate that applicant was in possession of the claimed invention for the following reasons:

The independent claim recites that the peptide is identical to birch pollen Bet v 1 at all positions except one, but the specification does not provide a full length Bet v 1 polypeptide sequence. Many Bet v 1 sequences are known in the art, and many of them differ from each other at only one amino acid (Friedl-Hajek et al., Molecular Immunology, 1999, 36:639-645, see entire document particularly Figure 1, and Swoboda et al. J. Biol. Chem. 1995, 270:2607-2613, see entire document particularly Figure 1). Without reference to a particular Bet v 1 sequence it cannot be known if a peptide is identical to a birch pollen allergen Bet v 1 at all positions except one because there is no basis on which to make the comparison. Indeed, a comparison of SEQ ID NO:1 to the numerous Bet v 1 sequences disclosed in Friedl-Hajek et al. and Swoboda et al. indicates that SEQ ID NO:1 of the instant application contains more than one amino acid difference to a birch pollen allergen Bet v 1 sequence depending on what Bet v 1 sequence is used as the recited allergenic protein. Note that this is also true of comparisons between applicant's SEQ ID NOs:2-6 with the multitude of known Bet v 1 sequences.

The guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, § 1 "Written Description" Requirement make clear that if a claimed genus does not show actual reduction to practice for a representative number of species, then the Requirement may be alternatively met by reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001, see especially page 1106 column 3).

Applicant has recited structural features including solvent exposure in the independent claim and the presence of solvent exposed amino acids in a 500 square angstrom patch in dependent claim 2, and the specification teaches that the structure of Bet v 1 is known in the art and can be used to identify peptides that have these structural properties (see particularly the last paragraph of page 3 and page 9 of the specification). These structural features do not help in the resolution of the above discussed limitation concerning identity with a Bet v 1 allergen at all positions except one.

The functional property applicant has recited is that the claimed peptide when administered elicits the production of a protective IgG response. The specification discloses that when the peptides of SEQ ID NOs:1-6 were administered to human birch pollen allergic patients as part of skin prick testing no allergenic activity could be detected (see particularly pages 15-17 of the specification) yet these same polypeptides could induce IgG antibodies in mice and rabbits that bound to full length Bet v 1 allergen (see particularly pages 18-21) and competed with IgE from birch pollen allergic human patients for binding to the full length Bet v 1 allergen. The structure of the peptide required to provide the functional properties of not being bound by IgE from birch pollen allergic patients (a property not currently recited) but that does elicit an IgG response that binds the full length Bet v 1 allergen is not readily apparent in that the specification does not appear to disclose what structure or amino acid sequence is required to give rise to these functional properties and therefore must be present in the genus of claimed peptides. It is known in the art that even single amino acid changes can completely disrupt the binding between an antibody and an antigen (Colman, P.M., Research in Immunology, 1994, 145:33-36, see entire document, particularly the paragraph that starts in the right column of page 33) and the breadth of the claims read on peptides that comprise single amino acid changes. Given that single amino acid changes can completely abrogate antibody-antigen binding, it is not clear what structure is required of the administered peptide of the instant invention such that it has the ability to elicit an antibody response that binds the full length native Bet v 1 allergen.

In light of all of the above, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus pharmaceutical compositions comprising peptides that differ from birch pollen allergen Bet v 1 at only one position and that are capable of producing a protective IgG antibody response upon administration to an individual and that the disclosure fails to adequately disclose what would be required for a peptide in a pharmaceutical composition to be recognized by a skilled artisan as a peptide that differs from birch pollen allergen Bet v 1 at only one position and is capable of producing a protective IgG antibody response upon administration to an individual. Thus, Applicant was not in possession of the claimed genus pharmaceutical compositions comprising peptides.

Applicant's arguments filed August 17, 2006 have been fully considered but they are not persuasive. Applicant has broadened the independent claim by amending the claim to remove the recitation of a single point mutation and argues that as such the

part of the rejection of record concerning how a skilled artisan would know if his peptide meets the claim limitation is rendered moot.

This argument is not persuasive because applicant's broadening amendments make it harder to identify the claimed subject material. Specifically, the claims now recite that the composition comprises a peptide that is at least 8 but no more than 50 amino acids in length that "has an amino acid sequence obtained from Bet v 1". It is not clear what is meant by "obtained from", but it appears reasonable that such "obtained" sequences comprise mutations or deletions as compared to Bet v 1. Support for such an interpretation appears in part c of the independent claim wherein it is recited that the peptide "has at least three consecutive amino acids identical to at least three solvent exposed amino acids of Bet v 1". Given that the peptide must be at least 8 amino acids in length yet only needs to comprise 3 identical consecutive amino acids of Bet v 1, 5 of the positions can comprise any of the 20 commonly occurring amino acids. 5^{20} is 95,367,431,640,625 sequences. This estimate of the number of sequences contained in the claimed genus is low since the identity of the 3 identical residues are not specified and because the recited peptide can be larger that 8 amino acids. Further sequence diversity is to be gained based on the fact that many alleles of Bet v 1 are known and the reference sequence from which the required 3 identical contiguous amino acids is not specified. To support this broad genus, applicant discloses only the peptides of SEQ ID NOs:1-6.

Applicant also argues that the recited functional limitations limit the claims, differentiate the claimed invention from the prior art, that the specification teaches that Bet v 1 peptides can be made synthetically or by proteolytic degradation, and that such peptides can then be screened for the recited functional activity.

This argument is not convincing because as stated in the rejection of record, the specification does not appear to teach a structure that correlates with the claimed function. Specifically, the relationship between the structure (amino acid sequence) of the claimed peptide that gives rise to the function of eliciting an IgG antibody response without eliciting an IgE antibody response is not disclosed. Methods of making the

recited peptides via screening assays speak to issues of enablement, not written description.

In University of California v. Eli Lilly and Co. (CAFC) 43 USPQ2d 1398, the court noted:

"A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene (in the instant case, a peptide) does, rather than what it is. See Fiers, 984 F.2d at 1169-71, 25 USPQ2d at 1605-06 (discussing Amgen). It is only a definition of a useful result rather than a definition of what achieves that result. Many such genes (peptides) may achieve that result. The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736 F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin [e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate."). Accordingly, naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material."

The court has also noted that "Adequate written description requires a precise definition, such as by structure, formula, chemical name or physical properties, not a mere wish or plan for obtaining the claimed chemical invention." Id. at 1566, 43 USPQ2d at 1404 (quoting Fiers, 984 F.2d at 1171, 25 USPQ2d at 1606). Also see Enzo-Biochem v. Gen-Probe 01-1230 (CAFC 2002).

Further, it is known in the art that no a priori structural basis can determine if a molecule will or will not be bound by IgE (Blumenthal et al. in Allergens and Allergen Immunotherapy, 3rd edition, 2004, pages 37-50, see entire document, particularly the last sentence of the third complete paragraph of page 39) and as such there does not appear to be a core structure found in all peptides that is responsible for IgE binding.

As discussed above, it does not appear that the recited functional properties correlate with the recited structure.

Therefore, it appears that the broad genus of peptides recited as being part of applicant's claimed compositions lack adequate written description because the recited

structural requirements do not appear to be correlated with the recited functional properties. As such a skilled artisan would reasonably conclude that applicant was not in possession of the claimed genus of pharmaceutical compositions at the time the application was filed.

9. Claims 1-4, 9, and 34-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The office action mailed May 24, 2006 states:

> The claims are drawn to pharmaceutical compositions comprising peptides wherein the peptides contain a single point mutation in comparison to the sequence found in birch pollen allergen Bet v 1, comprise a number of solvent exposed amino acids, and lead to the production of a protective IgG response upon administration. The specification discloses on page 9 that the structure of Bet v 1 is known and that reference can be made to this structure to identify solvent-exposed amino acids. The specification also discloses the peptides of SEQ ID NOs:1-6 which were made by adding a cysteine residue to either the C or N-terminal of Bet v 1 peptides, and that the peptides of SEQ ID NOs:1-6 could not be bound by IgE from birch pollen allergic patient but could elicit an IgG response in mice and rabbits that competed with the IgE from birch pollen allergic patients for binding to the full length Bet v 1 allergen (see particularly pages 12-25).
>
> Applicant's claimed compositions are broader than those comprising the peptides of SEQ ID NOs:1-6 in that the one amino acid difference between the claimed peptide and a Bet v 1 sequence can be located anywhere within the peptide excepting dependent claim 6 which limits the location of the non-identical amino acid to either the N-or C-terminal of the claimed peptide. However, the specification does not disclose a full length sequence of Bet v 1 that is to be used in making the determination if a peptide differs from Bet v 1 at only one position. Numerous sequences of Bet v 1 are known in the art (Friedl-Hajek et al., Molecular Immunology, 1999, 36:639-645, see entire document particularly Figure 1, and Swoboda et al. J. Biol. Chem. 1995, 270:2607-2613, see entire document particularly Figure 1). Without a reference Bet v 1 sequence, a skilled artisan would not know if compositions comprising a peptide of particular sequence differed from Bet v 1 at one, multiple, or no amino acid positions, and as such a skilled artisan would be unable to make compositions that would be know to be encompassed by applicant's claims.
>
> Applicant has also recited that the claimed compositions produce protective IgG responses upon administration. The specification defines protective IgG antibodies on page 5 of the specification, teaching that protective antibodies prevent IgE antibodies from binding to the allergenic protein. This definition appears to indicate that the protective IgG antibodies prevent the binding of all IgE antibodies that specifically bind that allergen. The specification does not appear to teach what changes can or cannot be made to a Bet v 1 peptide such that it comprises these functional properties and meets the structural limitations of the claims. As such it appears that a skilled artisan would not have any expectation of success that when a peptide was made that met the recited structural limitation that it would also comprise the requisite functional properties. The data presented in Example 4 and Table 6 of the specification indicate that the IgG antibodies elicited by the peptides of SEQ ID NOs:1-6 could compete with IgE antibodies for binding to some but not all epitopes recognized by IgE found in birch pollen allergic patients. Table 6 demonstrates that while IgE binding to full length Bet v 1 allergen was reduced, it was not eliminated and thus prevented under any experimental condition, and in some instances the presence of IgG antibodies generated by immunization with the peptides of SEQ ID NOs:1-6 did not alter allergen-specific IgE binding at all. As such, the examples of the specification do not teach any peptide that produces a protective IgG response concordant with the definition of that term on page 5 of the specification.

Further, it is known in the art that even single amino acid changes can completely disrupt the binding between an antibody and an antigen (Colman, P.M., Research in Immunology, 1994, 145:33-36, see entire document, particularly the paragraph that starts in the right column of page 33) and the breadth of the claims read on peptides that comprise single amino acid changes. Given that single amino acid changes can completely abrogate antibody-antigen binding, it is not clear what structure is required of the administered peptide of the instant invention such that it has the ability to elicit an antibody response that binds the full length native Bet v 1 allergen.

Therefore, based upon the breadth of the claims, the difficulty in making a peptide that differs from Bet v 1 at only one amino acid position without reference to a particular Bet v 1 sequence given the large number of different sequences that are known, the difficulty in identifying what sequence or structure is required of an administered peptide such that it can produce a protective IgG response and the lack of guidance or working examples concerning peptides that produce a protective IgG response that prevents the binding of all Bet v 1 allergen-specific IgE to the full length Bet v 1 allergen, a skilled artisan would be unable to make and use the claimed invention without conducting undue research.

Applicant's arguments filed August 17, 2006 have been fully considered but they are not persuasive. Applicant has broadened the independent claim by amending the claim to remove the recitation of a single point mutation and argues that as such the part of the rejection of record concerning how a skilled artisan would know if his peptide meets the claim limitation is rendered moot.

This argument is not persuasive because applicant's broadening amendments make it even hared for a skilled artisan to make the claimed material. Specifically, the claims now recite that the composition comprises a peptide that is at least 8 but no more than 50 amino acids in length that "has an amino acid sequence obtained from Bet v 1". It is not clear what is meant by "obtained from", but it appears reasonable that such an "obtained" sequence comprises mutations or deletions as compared to Bet v 1, and neither the claims nor the specification provide a reference sequence for Bet v 1. This "obtained" sequence is recited as only having 3 contiguous amino acids that are identical to Bet v 1, and as such the other 5 to 47 amino acids (since the peptide must be at least 8 but no more than 50 amino acids in length) reasonably could comprise any sequence. Claim 1 as amended 8/17/06 recites in part d that the peptide upon administration is "capable of inducing IgG antibodies to the allergenic protein". The allergenic protein is Bet v 1, and as such the administered peptide must elicit an IgG response and the elicited IgG antibodies must be capable of binding a native Bet v 1 allergen. As discussed in the rejection of record, Colman teaches that even a single amino acid change in an antigen can eliminate antibody binding. As such, the ability of

antibodies elicited by peptides that differ in sequence from Bet v 1 to bind Bet v 1 as is required by the instant claims is unpredictable.

Applicant also argues that the specification teaches that Bet v 1 peptides can be made synthetically or by proteolytic degradation, and that such peptides can then be screened for the recited functional activities.

This argument is not convincing because given the large number of Bet v 1 alleles, it is not clear what sequence should be used as a starting sequence for any synthetic sequence, proteolytic digestion, or screening assay. Further, the screening assay disclosed by the specification relies upon the skilled artisan to make a large number of peptides and then use random trial and error to identify candidates that comprise the recited functional properties. Trial and error is inherently unpredictable, and as such the disclosed screening method does not provide sufficient guidance as to what the sequences or structures comprise the claimed genus of peptides.

Therefore, based upon the breadth of the claims and the unpredictability concerning maintenance of recited function in the recited genus of peptides, a skilled artisan would require undue research to make and use the full breadth of applicant's claimed pharmaceutical compositions.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> **The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

11. Claims 35 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) The metes and bounds of claim 35 is unclear because given the large number of Bet v 1 sequences known in the art as evidenced by Friedl-Hajek et al. (of record, see entire document particularly Figure 1) and Swoboda et al. (of record, see entire document particularly Figure 1), and the lack of a recited Bet v 1 reference sequence, a skilled artisan would not know if a given peptide is encompassed by the claimed subject

matter, i.e. differing at only one amino acid residue from a reference sequence. This is because said peptide may differ by one amino acid from Bet v 1 sequence X, differ by 3 amino acids from Bet v 1 sequence Y, and yet be identical to Bet v 1 sequence Z. Since a skilled artisan cannot clearly identify what peptides are or are not encompassed by the claimed invention, the instant claims are indefinite. Note that this ground of rejection was applied to claims 1-4, 6 and 9 in the prior office action. Applicant has canceled claim 6 and has removed the recitation of "all amino acids except one are identical" from independent claim 1 as part of the amendments received 8/17/06, and as such the rejection is no longer applicable to claims 1-4 and 9.

Applicant argues that the claims are not indefinite because even though no reference Bet v 1 sequence is recited and multiple Bet v 1 sequences are known in the art, "Applicants are claiming a relatively short segment of bet v 1, having at least 3 amino acids identical to surface exposed amino acids, and further teaching that the segment lacks T cell epitopic sites, and further teaching that the segment does not have any secondary structure, and further teachings how such sequences can be identified using an immunological model there is no basis for an indefiniteness rejection".

This argument is not convincing because much of the basis of applicant's argument is not claimed. Specifically, the claims do not recite a lack of T cell epitopes or lack of secondary structure. The length of the peptide is not persuasive since even a sequence as short as 8 amino acids may differ by one amino acid from Bet v 1 sequence X, differ by 3 amino acids from Bet v 1 sequence Y, and yet be identical to Bet v 1 sequence Z. Bet v 1 is an naturally occurring protein with many alleles both known (see Friedl-Hajek et al. and Swoboda et al. cited above) and unknown, and as such it is unclear how a skilled artisan would determine that any given peptide differs by only 1 amino acid from Bet v 1 generically.

B) Claim 37 is rejected because it is unclear how the dependent claim can recite that "the at least three amino acids identical ... are not consecutive" when the independent claim recites "has at least three consecutive amino acids identical to...". How can consecutive amino acids become non consecutive?

12. Claim 38 is objected to as being dependent upon a rejected independent claim, but would be allowable if rewritten in independent form including all of the limitations of the independent claim and any intervening claims.

13. No claims are allowable.

14. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

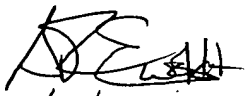
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Szperka whose telephone number is 571-272-2934. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Szperka, Ph.D.
Patent Examiner
Technology Center 1600
October 19, 2006



10/24/06

G.R. EWOLDT, PH.D.
PRIMARY EXAMINER